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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,376	12/20/2001	Khanh Phi Van Doan	169.2262	3504

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EXAMINER	
CASCHERA, ANTONIO A	

ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/022,376	DOAN, KHANH PHI VAN	
	Examiner	Art Unit	
	Antonio A. Caschera	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-9,11-17 and 19-24* is/are rejected.

7)☒ Claim(s) *2,10 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in the pending application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-9, 11-17 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaasila (U.S. Patent 6,437,793 B1) in view of Valdes et al. (U.S. Patent 5,438,656).

In reference to claims 1, 9 and 17, Kaasila discloses a method and system for scan conversion, or pixel rendering, of outline fonts and other graphic elements with anti-aliasing (see column 1, lines 7-10). Kaasila discloses using a 2 pixel setting pass technique for scan converting (see columns 4-5, lines 65-1) whereby, for each boundary pixel, the degree of coverage is tested using the 2 passes, configured in horizontal and vertical orientations (see columns 9-10, lines 54-2 and #190-196 of Figure 12). Kaasila explicitly discloses the "XlinePass" and "YlinePass" routines to comprise of calculating winding counts for traversed edges of a character (see column 13, lines 21-26 and Figures 35 & 41). Kaasila also discloses calculating the coverage value for a pending boundary pixel using a number of configurable

equations (see Figures 37-39) which include utilizing, the winding count values (see column 16, lines 14-22), values associated with the above mentioned horizontal and vertical "line passes" (or sampling lines, x and y) (see column 16, lines 37-55) and prior pixel coverage values of the pending pixel (see column 17, lines 58-64). Note, the Office interprets the coverage calculations of Kaasila to disclose using "an intrinsic opacity of the object" as Kaasila discloses the use of prior pixel coverage values, these values, when taken over the entire area of the character, represent the coverage value of the character or object as a whole. Kaasila discloses assigning the coverage value to the pending pixel's bitmap element and rendering pixel (see column 1, lines 7-10, column 17, lines 52-57 and #360 of Figure 36). Kaasila also discloses allowing for adjacent character or object edge bitmaps to be superimposed upon one another thereby combining their pixel coverage values and allowing objects to be rendered on top of a background object or color (see column 18, lines 9-15). The Office interprets such superimposing and combining of pixel coverage values while rendering functionally equivalent to compositing while rendering. Kaasila does not explicitly disclose determining each boundary pixel that overlaps both sides of a border of the object, however Valdes et al. does. Valdes et al. discloses a method and device for efficiently synthesizing raster shapes (see column 1, lines 6-10) whereby pixels are classified as inside pixels, outside pixels and boundary pixels, boundary pixels being defined as those pixels that are affected by the outline of shape and are crossed by the outline containing both inside and outside points (see column 9, lines 14-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the boundary pixel determination techniques of Valdes et al. with the pixel coverage computation techniques of Kaasila in order to better approximate the shape of an object, allowing and

determining pixels to be part inside and part outside the boundary so that marginal improvements in visual perception of the object by a user are produced (see columns 1-2, lines 63-10 of Valdes et al.). Further in reference to claim 17, Kaasila also discloses a computer implementing the above disclosed coverage computing techniques, the computer comprising memory storing code to implement the techniques (see column 8, lines 10-32) (see *Response to Arguments* below).

In reference to claims 3, 11 and 19, Kaasila and Valdes et al. disclose all of the claim limitations as applied to claims 1, 9 and 17 respectively above in addition, Kaasila discloses computing coverage values of boundary pixels using a plurality of sample lines made up of a plurality of sample points within each boundary pixel (see column 20, lines 10-12 and Figures 54-59). Kaasila discloses utilizing prior pixel coverage values of the pending pixel (see column 17, lines 58-64), noted as "Cx" and "Cy" of Figure 38 or "CL1-CL4" of Figure 59, along with winding count data incorporated in the sample line coverage processing of Figures 35 and 36 (see column 16-22). Kaasila discloses the coverage value of the pixel being calculated and stored in a look up table by summing the computed coverage values of sampling lines, Cx and Cy, and then dividing this value by a total number of samples made (see columns 20-21, lines 65-12 and Figure 40).

In reference to claims 4, 12 and 20, Kaasila and Valdes et al. disclose all of the claim limitations as applied to claims 1, 9 and 17 respectively above in addition, Kaasila discloses computing coverage values of boundary pixels using a plurality of sample lines made up of a plurality of sample points within each boundary pixel (see column 20, lines 10-12 and Figures 54-59). Kaasila discloses utilizing prior pixel coverage values of the pending pixel (see column 17, lines 58-64), noted as "Cx" and "Cy" of Figure 38 or "CL1-CL4" of Figure 59, along with

winding count data incorporated in the sample line coverage processing of Figures 35 and 36 (see column 16-22). Note, the Office interprets Kaasila to inherently disclose determining areas within boundary pixels having constant winding counts since winding counts keep tack of those areas that are inside and outside the object's boundary (see column 13, lines 21-26) and boundary pixels are already determined to comprise of those areas. In other words, the winding counts for those portions end up equaling zero, or a constant value, since +1 and –1 are added to the winding count when traversing through the boundary pixel (see column 13, lines 45-55). Kaasila also discloses determining the coverage of a boundary pixel using the sum of the product of percentage areas of the pixel along with previous coverage values (see column 20, lines 10-20 and Figures 38 and 59).

In reference to claims 5, 13 and 21, Kaasila and Valdes et al. disclose all of the claim limitations as applied to claims 1, 9 and 17 respectively above in addition, Valdes et al. discloses operating upon "simple outline" shape data (see column 3, lines 24-31).

In reference to claims 6, 14 and 22, Kaasila and Valdes et al. disclose all of the claim limitations as applied to claims 1, 9 and 17 respectively above in addition, Kaasila discloses the possibility of operating upon self-overlapping shape portions (see column 13, lines 59-67).

In reference to claims 7, 15 and 23, Kaasila and Valdes et al. disclose all of the claim limitations as applied to claims 1, 9 and 17 respectively above. Kaasila discloses calculating winding counts in two directions, x and y, 1-9 in the x direction and 1-8 in the y direction (see #x0-x8 and y0-y7 of Figure 41).

In reference to claims 8, 16 and 24, Kaasila and Valdes et al. disclose all of the claim limitations as applied to claims 1, 9 and 17 respectively above. Valdes et al. discloses a method

and device for efficiently synthesizing raster shapes (see column 1, lines 6-10) whereby pixels are classified as inside pixels, outside pixels and boundary pixels, boundary pixels being classified as those pixels that are affected by the outline of shape and are crossed by the outline containing both inside and outside points (see column 9, lines 14-22). Valdes et al. also discloses using winding count values to determine an "insideness criterium" of a pixel and setting a coverage value of 1 to these inside pixels (see column 12, lines 25-47). Valdes et al. discloses outputting the coverage values of these pixels to be rendered (see #180 of Figure 5b and #116a and "Raster Shape" of Figure 1). Note, the Office interprets Valdes et al. to disclose utilizing the intrinsic coverage of the object when calculating the coverage of an inside pixel as Valdes et al. creates a bi-level raster shape, therefore the intrinsic coverage is one of two values, "1" or "0," which is determined by Valdes et al.

Allowable Subject Matter

3. Claims 2, 10 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In reference to claims 2, 10 and 18, the prior art of record (Kaasila (U.S. Patent 6,437,793 B1) and Valdes et al. (U.S. Patent 5,438,656)) does not explicitly disclose calculating the real opacity of a boundary pixel wherein the opacity is a weighted sum of real opacities of respective subregions and the opacity of a subregion is $1-(1-a)^{|n|}$, where a is the intrinsic opacity of the object comprising the boundary pixel and n is the winding count for the subregion, in

combination with the further limitations of claims 1, 9 and 17, of which claims 2, 10 and 18 depend upon, respectively.

Response to Arguments

4. Applicant's arguments, see pages 40-41 of Applicant's Remarks, filed 08/29/05, with respect to the objection of the specification have been fully considered and are persuasive. The objection of the specification has been withdrawn since minor informalities have been corrected.

5. Applicant's arguments, see page 40 of Applicant's Remarks, filed 08/29/05, with respect to objection of the drawings have been fully considered and are persuasive. The objection of the drawings has been withdrawn since all reference numbers are now mentioned in both the drawings and specification.

6. Applicant's arguments, see page 41 of Applicant's Remarks, filed 08/29/05, with respect to the 112 2nd paragraph rejection of claims 8, 16 and 24 have been fully considered and are persuasive. The 112 2nd paragraph rejection of 8, 16 and 24 has been withdrawn since antecedent basis has now been established for all the claim limitations within these claims.

7. Applicant's arguments filed 08/29/05 have been fully considered but they are not persuasive.

In reference to claims 1, 3-9, 11-17 and 19-24, Applicant argues that Kaasila does not teach the computing of a real opacity of a boundary pixel specifically using the "intrinsic opacity" of the object (see pages 43-44 of Applicant's Remarks). Applicant goes on to state that the Office mentioned "prior pixel coverage values" of Kaasila are limited to boundary pixels as opposed to the "intrinsic opacity" of the object (see page 43, last paragraph of Applicant's

Remarks). The Office points to column 18, lines 15-19 and Figures 44 and 45 of Kaasila. Kaasila explicitly discloses all pixels of the letter "B" having pixel coverage values calculated by the first pass (xlinepass) of the dual pass method of Kaasila. Figures 44 and 45 also show that all the pixels which make up the object "B" are processed and not just boundary pixels. Finally, Kaasila discloses that the "pixel coverage values" range from 0 to 126, representing partial to total transparency (see column 18, lines 3-15). The coverage calculations of pixels in Kaasila incorporate the use of these prior "pixel coverage values", these values, when taken over the entire area of the character, represent the coverage value of the character or object as a whole, therefore, the Office interprets the "prior pixel coverage values", when taken together, functionally equivalent to the "intrinsic opacity of the object" of Applicant's claims.

Also, in reference to claims 1, 3-9, 11-17 and 19-24, Applicant agues that Kaasila does not disclose rendering a boundary pixel by compositing (see page 44, 3rd paragraph of Applicant's Remarks) as newly amended to claims 1, 9 and 17. The Office disagrees as Kaasila discloses allowing for adjacent character or object edge bitmaps to be superimposed upon one another thereby combining their pixel coverage values and allowing objects to be rendered on top of a background object or color (see column 18, lines 9-15). The Office interprets such superimposing and combining of pixel coverage values while rendering functionally equivalent to compositing while rendering as claimed in the claims 1, 9 and 17 of Applicant's claims. Therefore, the Office believes Kaasila to also teach this feature.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (571) 272-7781. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

aac

10/31/05